

How to Grow *Darlingtonia Californica*

by

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Darlingtonia californica, otherwise known as the cobra lily, or cobra pitcher plant, is one of the most interesting looking carnivorous plants. This is paying the plant quite a compliment, as the beauty to be found among the many different species of carnivorous plants is extensive. It is surprising therefore, that many hobbyists do not include it in their collection. The answer to why they do not is because the plant can be challenging to grow. The challenge arises because it is one of a few carnivorous plants that requires different conditions from most of the others typically found in carnivorous plant collections. Unless these conditions are met, it is a difficult if not impossible plant to grow. After a few years of experimentation, and assistance from an expert, I have determined a way to successfully and easily grow this spectacular plant.

When attempting to cultivate any organism outside of its natural habitat, it is important to understand the general conditions of the habitat. *D. californica* (according to Peter D'Amato) grows along streams and seeps from sea level to high elevations in the northwestern United States, where the water temperature never exceeds 50 degrees, and the air temperature may often be in the 90s. The roots always stay cool, and the night temperatures drop into the 50s. Unlike its cousins the *Sarracenia* species, however, *Darlingtonia* does not tolerate warm root temperatures.

In its native mountain habitat, *Darlingtonia* grows in a sandy/coarse gravel medium where there is always a flow of water running over the roots. Peter said he never saw any growing in a mossy situation where one might see *Sarracenia* growing.

What Did Not Work

Some of my trials with the cobra pitcher that were unsuccessful were instrumental in helping me discover what would work. I made the mistake of growing *Darlingtonia* with my *Sarracenia*s, (both local nursery stock) which are full sun, warmth-loving plants. At the advice of the nursery, I grew them outdoors in large clay pots sitting in water in a mostly peat moss medium. The metro Washington, D.C. summer can reach high 90's for extended periods of time. The cobras lasted only two weeks before getting fungus infections or withering. This was early in my carnivorous plant adventures, even before I owned any good books. I purchased a book or two, which pointed out that *darlingtonia* preferred cooler temperatures. So, I tried again, with the same nursery stock, only this time I grew them in more water and in a larger pot in the shade. The same result ensued.

I then tried again with the same arrangement indoors and in terraria. The plants lasted a little longer but succumbed to the fungus. I also noted that the plants I were using had little to no root system. This is common through retail sales-*Darlingtonia* reproduces asexually through a stolon that produces new plants. These stolon-born plants are severed and sold with little root development. Although this was a major

problem I identified, it was not all of the cause for my dismal failures with the plants. I tried with high quality mail-order plants that were healthy and had well developed roots. They lasted longer than the others, but even indoors they did not prosper and would rot and die within a short time of their arrival. I truly wanted to succeed, so I decided to call the aforementioned expert for advice.

What Worked

Peter described in detail how the plant grows and made recommendations as to how to grow them in captivity. Here is what he told me:

- Medium: Pure perlite or 50% perlite/50% sphagnum. He said the plants do not grow in peat moss any where that he has seen, but can have decomposed vegetation in the soil.
- Water: Overhead with chilled water one-two times daily. A deep saucer can be used under the pot to collect water to a few inches in depth.
- Light: Filtered, window sill light.
- Temperature: Chilly! Avoid temperatures above 60F, air temperature, 70-75F.

I placed six plants in pure perlite in a large clay pot with a large saucer underneath over an air-conditioning vent in the floor, directly in front of a full length window. The window received 3-4 hours of morning sunlight a day. The medium temperature never got above 59 degrees F. The culture was watered overhead daily no less than 2 times a day with refrigerated distilled water with two capfuls of Superthrive diluted per gallon. The amount of Superthrive may seem excessive, but since the medium was so well-drained, I thought a higher concentration was necessary on a run-through basis. Once a week, I would inject a drop or two of 1/4 strength solution of Muracid into the mature pitchers. This procedure is not necessarily the standard, many growers preferring to mist the leaves, but I found it be effective as an alternative to collecting the bees and wasps that *Darlingtonia* reportedly attracts as prey!

The plants were grown in the open with no provisions made with regards to the humidity level and were rarely misted. Although the pitchers on the plants when they arrived "burned" a little from this, the plants sent up new leaves and prospered all spring/summer long. One or two of the plants even produced plantlets from stolons.

Having succeeded in the growing season, the only hurdle to cross was dormancy.

Dormancy

My plants started to slow down a little toward the end of October, and by early November were apparently not growing anymore. I had moved them off the vent in late September because the air-conditioning vent was then a heat vent. They were placed on the opposite side of the window where heat loss through the window kept the plants cool. I understand the plants can sustain below zero in the winter and are dormant in these colder temperatures for anywhere from 4-5 months. This, of course, was impossible indoors. Rather than risk all my hard earned specimens outdoors, I divided my six plant culture into three groups of 2. The first went outdoors, the second into the

refrigerator, and the third stayed in the pot.

The first group was placed outside in a pot in the same medium, and mulched over with leaves, bark etc. and set against the house where harsh winds would not affect them. Metro D.C. winters can get as low as the teens and as high as the low 40's F with occasional light to heavy snow. This method was not successful. After about one month, I noted the plants were brown even into the rhizome. Upon closer inspection, I declared the plants dead. There was insufficient moisture in the winter air to keep them hydrated and they froze solid one or two times. The overall effect was "freeze drying". I would not recommend this method in areas with harsh winters.

The second group was uprooted, soaked in fungicide for 15 minutes, wrapped tightly in live moss, and placed into a zip lock freezer bag which was placed into the refrigerator. The temperature measured a steady 35 degrees F. I checked them weekly (through the bag) for signs of disease and/or stress. The plants were evergreen through two months. At the third month (February) I noted the rhizome of one turning brown, and the other showing signs it was not doing well. I retrieved them from the bag and inspected them more closely. One of the plants was declared dead, and the other distressed. I placed the distressed plant in a strong solution of Superthrive for 30 minutes and placed it with group three. Although many growers use this method, I do not recommend it. I theorize the plants do not like being uprooted and subsequently thrust into a different environment so suddenly.

Group three was left alone...basically. They were left in their pot by the window. I did place the pot and saucer inside a clear plastic garbage bag to protect them from the dry indoor winter air and watered with distilled water occasionally to flush the medium and keep the roots clean. The plants made it. They have signaled their awakening in early March by sending up flower stalks, and will be moved back over their air-conditioning vent when the weather dictates that we turn it on. The plant from group two in this pot is alive, but far from prospering. I water the complex daily with my Superthrive solution overhead and have started fertilizing the pitchers. I will remove the bag (gradually) when ambient humidity increases to an acceptable level.

The major points to consider when growing the cobra lily are the following:

- Purchase established plants from a reputable dealer.
- Grow the plant indoors.
- Keep the plant cool- especially the roots- never above 60F or so degrees. Grow in a coarse medium (1/2 moss, 1/2 perlite), where the roots have access to aeration, and water frequently overhead with cool distilled water.
- For dormancy, leave the plants in their pot and place the pot where cooler winter temperatures can be used to leech heat away from the plants (directly against the glass in a window sill is perfect.) Cover the plants in a clear bag to protect from dehydration.

Darlingtonia can be a very rewarding plant to grow with an understanding of the plant's special needs. Once these are taken care of, the plant does very well with standard maintenance. Hopefully, those growers who were having trouble can benefit from my experiments and establish this plant in their collections for their own enjoyment and the plants'-- *D. californica* is not as plentiful in the wild as it once was.

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